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INFORMATION REPORT

COUNTRY : Germany/USSR

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Kuibyshev Junkers Group

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1. Germany (1945-46)

- (a) After occupation of the Anhalt district of Saxony by Soviet troops, all Junkers specialists who still lived in Dessau and surroundings were ordered to the plant and interviewed concerning their work during the war. Two groups were formed under the supervision of the Soviet military officials. These were the Engine Section which was under the direction of Dr Scheibe and the Aircraft Section under Baade. At first these groups did not appeal to the specialists because the hook could clearly be recognized under the bait. After economic conditions in Germany became so poor, however, more and more cooperation was obtained from the Germans. The German leaders hoped that through collaboration with the Soviets, personal advantages could be gained, dismantling of the plant could be avoided, and working opportunities for more people would be made available.

(b)

Aerodynamics Department

Aircraft Section.

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[] In this department, which Treiber supervised, projects for test stands for the engine group were the primary functions, but other Soviet development was also carried out. These included pressurized engine test cells and wind tunnels, and smaller items such as water brakes and various types of test stands. The assignments were, for the most part, difficult to accomplish, both with respect to performance required and technical details such as noise dampers, energy recovery, and measurement accuracies. [] the personnel issuing these assignments had no concept of what equipment was necessary to test a turbojet engine unit.

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(e)

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(d)

[] the engine group. There, working conditions were poorer than in the aircraft section. Of the German "specialists", only three at most had worked on the development of jet power plants. The other workers had a fair knowledge of general engineering but not in the specialized fields. The inheritance which the Soviets had received was completely worthless. For example, almost no data were found on the JUMO 012 project. []

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[] the measurements of the 012 compressor were reproduced from scrap parts and that it was not known whether these parts, such as rotor blades and guide vanes, were from the latest developments or from earlier work. The whole enterprise bordered on technical swindle.

- (e) Conscious of their weaknesses, the responsible directors and supervisors tried to change their activities to fields in which they were more familiar and proffered such projects to the Soviets. The Soviet management accepted these proposals, which were assigned to a group under the direction of Gerlach, but it also insisted on the development of jet power plants.

- (f) Besides the work on the JUMO 012, a new project called the JUMO 022 was started. [] this was strictly a postwar development. The compressor for the JUMO 012 had been constructed and was being tested using a steam turbine as a source of power at the time the transfer to the USSR took place in October 1946.

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2. USSR (1946-50)

- (a) Contrary to their hopes, the "Peace Section", excluding certain of the lesser skilled personnel, was also transferred to the USSR. [] the engine group, was shipped by train to Krasnaya-Glinka via Kuibyshev, and from there in automobiles to Uprawlentschsky, arriving 6 Nov 46. In this town, most of the personnel were assigned to apartments in various sections; the remainder, for whom apartments were not available, were primitively housed in a housing area on a hill on a bank of the Volga River. Later, those families received apartments in a settlement of wooden houses (called Finnish houses). A total

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of 750 German specialists with their families lived in this town until September 1950. All of them had previously worked for Junkers/Dessau, BMW/Stassfurt, and Askania/Berlin.

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- (b) The plant, officially named "State Research Plant #2", consisted of empty assembly shops, administration buildings, storehouses and auxiliary facilities arranged as sketched on Enclosure (A).

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In the shops of this plant, the dismantled equipment of the Junkers engine plant and of BMW/Stassfurt were set up. The construction departments were housed in Building #3. The Askania Group, with its workshops, was housed in a separate area. The first task was the installation of the equipment and in designing, building and putting into operation the test stand (see Enclosure (B)). Because of the very poor living conditions, the attitude and morale of the Germans reached a dangerous stage. This was reflected in their lack of interest in their work and friction amongst themselves. Life was unbearable.

- (c) In early 1947, the Soviets circulated rumors that some of the specialists were to be returned to Germany. This seemed credible to the Germans because many departments were over-staffed and also because mistakes had been made in Germany in arresting people who were of no value to the Soviets. Because of this rumor, many were hopeful and refused to work, aiming to appear superfluous and thereby to be returned home. At first this situation was tolerated by the Soviets because no proper overall control of the plant existed.

- (d) one person in each group regularly reported to NKVD officials concerning work efficiency, political attitude and discussions in general. The Soviets began arresting people who were evidently considered by them to be unreliable.

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(e)

To minimize social hardships, German workers founded a social security agency and from the funds of this agency all sick people received benefits. By this organization, the minimum living costs of our group were insured. Pensions were paid to widows and survivors of deceased specialists, who prior to my leaving the USSR, did not receive any support from the Soviet Union.

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- (f) The JUMO 012 project had been dropped as had the separate developments worked on by the BMW group. The latter was discontinued because the 022 was a better engine than the BMW. All personnel concentrated their effort on the JUMO 022 turboprop which was to be made ready for series production in the shortest possible time. The beloved technical work, complete seclusion, and the overstaffing in departments with the everpresent danger of transfer which was always connected with a salary reduction for the victim, made ambitious and industrious co-workers, in spite of the fact that salaries were barely enough to live on.

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Factory test runs were made on the 022 unit, proving its practicability. The compressor, combustion chamber, and turbine were improved by systematic tests, and finally the State Test Run was performed, leading to Soviet approval after the second test. The development of a starter of 50 horsepower (PS) was successful and the whole power plant was ready for series production by the end of 1949.

- (g) The Soviet Director of the plant, Col Olechnowitsch, had been removed and the construction chief, Col Kusnizoff took over direction of the work. (The Soviets explained that Olechnowitsch had a new job.

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New projects were assigned, but further development of the JUMO 022 also was continued.

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meetings held every Wednesday with the department chiefs. In those two hour meetings, current problems of thermodynamics, compressor calculations, and turbine and combustion chamber designs were discussed.

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(h)

- (i) On 5 Sep 50, General Luckin (Soviet Air Force) visited the plant. In the afternoon, some of the Germans received written invitations for a meeting in the clubhouse. They were informed that all assembled there would be permitted to return to Germany. This exodus began on 6 Sep 50 and on 22 Sep 50 we arrived in Germany. At the same time (15 Sep 50), the Askania Group was transferred to Moscow. The selection of returnees was done in Moscow and the method used was not even known to the director of the plant, Col Kusnizoff.

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3. Results and Personalities

- (a) One of the results of four years of research work in the USSR was the creation of the JUMO 022. This, with five thousand horsepower, represents remarkable progress for the Soviet Air Force - even if the fuel consumption figures do not attain the standards of British and American power plants of similar output. Furthermore, in these four years a working group evolved from a mixed group of engineers, which, with the experience gained in developing the JUMO 022, and in possession of all necessary theoretical working data, is now in position to develop within a year a modern unit ready for series production and considered satisfactory when evaluated by Western standards.

(b)

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- (c) The value of this research group to Soviet aircraft technique could only be judged if one knew the creative efficiency of native Soviet research work. As they did in Germany, the Soviets declared that in the USSR they already had something better and did not need German development. But the great interest of the Air Ministry was not only in the development of the JUMO 022, but also in secondary developments, such as the water brakes which were made there. Drawings of the water brakes had to be made for the Navy, but the Navy had to pay for them; this curious financial arrangement by the Soviets temporarily improved the poor economic conditions of the plant.
- (d) Col Kusnizoff, before his arrival at Kuibyshev, directed a Soviet research institute. Kusnizoff was a winner of the Stalin prize and a member of the Academy. He brought with him to Zavod #2 a small staff of collaborators who, according to their specialities, were distributed to various departments. For example, Kutscharoff worked in the compressor department. The Germans tried several times to discuss the previous working of this group, but received only careful and evasive answers.

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- (e) On 20 Apr 49, during a State Test Run, the transmission of the 022 broke and the whole propeller transmission came loose. Only Deinhardt, [redacted] and Kutscharoff were in the office when the accident became known. [redacted] 25X1

[redacted] it was even more surprising that the technical experts of the State Test Run Committee acknowledged the opinion of the German materials examination and had the State Test Run repeated.

- (f) Soviet workers had no responsible positions before September 1950 at Zavod #2 nor were they permitted to work independently either on test stands or in fabrication. [redacted] it is improbable that the research group there can exist without the German engineers. If all Germans were repatriated by the end of 1951, as the Soviets had declared, then [redacted] other research agencies must exist elsewhere in the USSR, [redacted] 25X1

5. Organization of the Junkers Group at Kuibyshev

- (a) Enclosure (C) shows the organization of the Germans and the leading personalities of each department. This structure was finally developed by trial and error. Oleschnowitsch was the first Soviet director of the plant, but was later replaced by Kusnizoff; this change had little effect on the plant's operation. [redacted] 25X1

The Soviet management had contact with the Soviet Air Ministry and there was also a permanent plant representative from that body. In addition, there were Communist Party and Labor Union offices at Zavod #2; each of these were actively connected with the operations of the plant.

(b) Soviet Personalities

(1) Oleschnowitsch:

In Dessau he had been chief of the Soviet Office; [redacted] 25X1

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(2) Kusnizoff

Was Chief Technical Designer under Oleschnowitsch
and then succeeded him as director of the plant.

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(3) Major Kwasoff and Captain Semjonoff

These men were also on the Management Staff. They
had little to do with the technical work.

(c) German Personalities

(1) Dr Scheibe (Research Manager)

(2) Dr Vogts (Design)

(3) Brandner (Construction)

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(4) Dr Scheinhorst (Stress and Vibration)

(5) Dr Schmitt (Stress and Vibration)

(6) Dr Schulze (Thermodynamics)

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(7) Kuemmel (Thermodynamics)

(8) Prestel (Testing)

(9) Dr Schroeder (Calculations)

(10) Dr Christian

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Dr Christian, a German engineer, arrived at Zavod #2 about the middle of July 1950.

- (d) [redacted] several other engineers working under Brandner's direction [redacted] being fairly outstanding. These were Deinhardt, Dr Cordes (propellers and turbines), who had a good technical background, Waldmann, who directed the combustion chamber group until the arrival of Gerlach's group, and Dr Schroeder, who was an axial compressor specialist. (One reason that Gerlach supplanted Waldmann was that Gerlach's leadership qualities were superior to those of Waldmann.)

- (e) Very little traveling was done by the Germans in the USSR. The group which supposedly had gone to Moscow to work on diesel engines was transferred to Kuibyshev in the last half of 1949 and absorbed into the Junkers Group. One German, an Engineer Kervin, made at least two trips to Podberezje, to act as an advisor on JH 287 flight tests.

[redacted] Kervin was well qualified on the JUMO 004 engine, having worked on its development during World War II. At Zavod #2 he was in the Power Plant

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Testing Department. [redacted] names of some of the Askania Group who had traveled [redacted]

Their names are as follows:

Moeller : Worked on control problems. "Spiritual leader" of Askania personnel.
 Dr Pfeiffer: Chief of the Group
 Ornamuender: Associate of Pfeiffer
 Mueller : Oscillograph Specialist

5. Notes concerning fabrication possibilities of Zavod #2

- (a) Enclosure (A) is a sketch of the general layout of Zavod #2. This is not drawn to scale [redacted]

[redacted] In addition to those installations shown, there was a social club building next to the plant's entrance. To the west of the social club was an area in which equipment brought from Germany was stored, packed in the original shipping crates; one item included in this packed equipment was the pressurized engine test cell from Junkers/Dessau. The whole plant area was surrounded by a wooden fence 2.5 to 4 meters high. Watchtowers were spaced along the fence and manned day and night; these watchtowers are the "Landmarks of Russia".

- (b) The U-shaped building (Point No 4) to the south of the main shop housed the general administration offices on the upper floor and various other activities (barber shops, etc) on the lower. To the east were located the compressor building (Point No 5), carpentry and forge shops which contained annealing and hardening furnaces, two pneumatic hammers, and several "friction" presses of which only one was in operation.

- (c) All machinery had been brought from Junkers/Dessau and BMW/Stassfurt. [redacted]

[redacted] Because of tool limitations, parts had to be designed as simply as possible from a fabrication standpoint.

- (d) [redacted] the process followed in machining a compressor rotor blade being as follows: The blanks are die-forged, milled on copy machines and finished by hand. The copy milling machine was made from an old lathe with the pattern running on one spindle and the blank on another. A feeler on the master blade determined the cut on the blank. Longitudinal movement of the miller was automatic. The milled blade was very rough and was finished by hand filing. A large percentage of blades were rejected. For each rejected blade the German responsible had 150 rubles deducted from his wages. This amounted to about 50 working hours' salary. Steel stator blades were made in the same manner.

- (e) A special cutting tool was devised for forming the blade root slots in the turbine guide vane rings. This consisted of bronze electrodes having the same shape and size as the blade roots. These electrodes burned through the rings in an oil bath. The bronze wore out very quickly and each electrode was good for only about five operations. They were milled from bar stock and finished by hand.

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(f) The limited facilities made the plant primarily a large machine shop. It had no large scale production possibilities with the equipment installed. In fact, the fabrication possibilities were so limited that the same blading was used in several stages of the compressor to cut down the complications of production.

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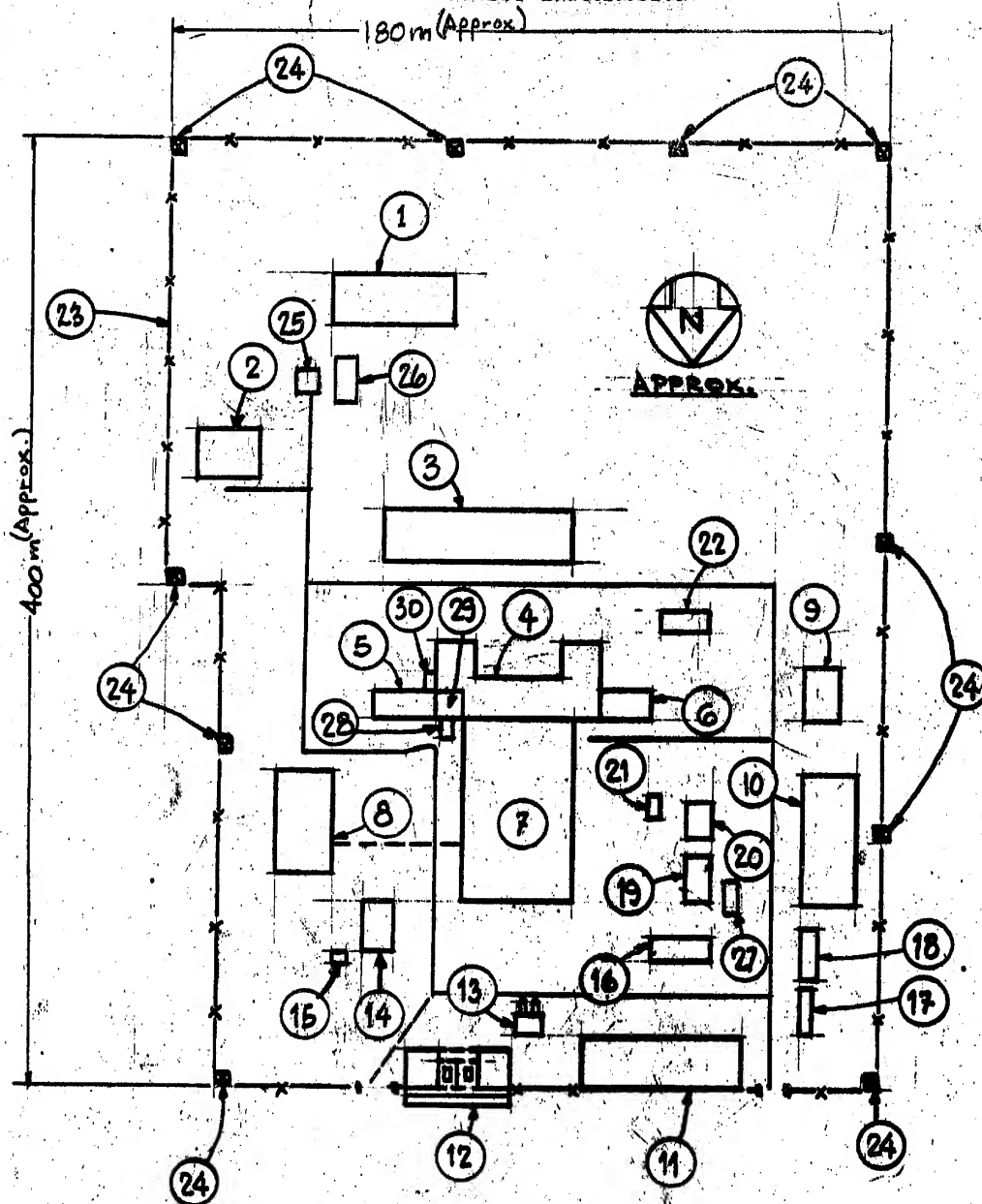
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-end-**ENCLOSURES: (A) Zaved #2****Page 1 - Layout****Page 2 - Legend****(B) Engine Test Stand****(C) Organization Chart****SECRET****SECRET**

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ZAVOD #2

LAYOUT

ENCLOSURE (A)

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LEGEND

POINT 1: NEW TEST STAND BUILDING Started in 1946; still not operating in 1950.
POINT 2: TEMPORARY TEST STAND Built in 1946
POINT 3: DESIGN OFFICE
POINT 4: ADMINISTRATION BUILDING, WORK PLANNING, PLANT MANAGER
POINT 5: CARPENTRY SHOP
POINT 6: TEST STANDS FOR EQUIPMENT (pumps, etc) AND COMBUSTION CHAMBERS
POINT 7: MAIN ASSEMBLY SHOP
POINT 8: SHEET METAL WORKSHOP
POINT 9: HEATING PLANT
POINT 10: ASKANIA SECTION
POINT 11: METALLURGY BUILDING
POINT 12: ENTRANCE AND GUARD HOUSE
POINT 13: COMPRESSOR TEST STAND
POINT 14: STOREHOUSE
POINT 15: PRISON
POINT 16: STOREHOUSE
POINT 17: STOREHOUSE
POINT 18: STOREHOUSE
POINT 19: AMBULANCE GARAGE
POINT 20: UNKNOWN
POINT 21: ELECTRO-MOTOR REPAIR SHOP
POINT 22: REPAIR SHOP BUILDING
POINT 23: FENCE
POINT 24: WATCHTOWERS
POINT 25: GASOLINE STORAGE TANK
POINT 26: SMALL REPAIR SHOP - CHECKING OF MEASURING INSTRUMENTS
POINT 27: FIRE STATION - ONE VEHICLE
POINT 28: AIR COMPRESSOR
POINT 29: ANNEALING BUILDING
POINT 30: FORGE

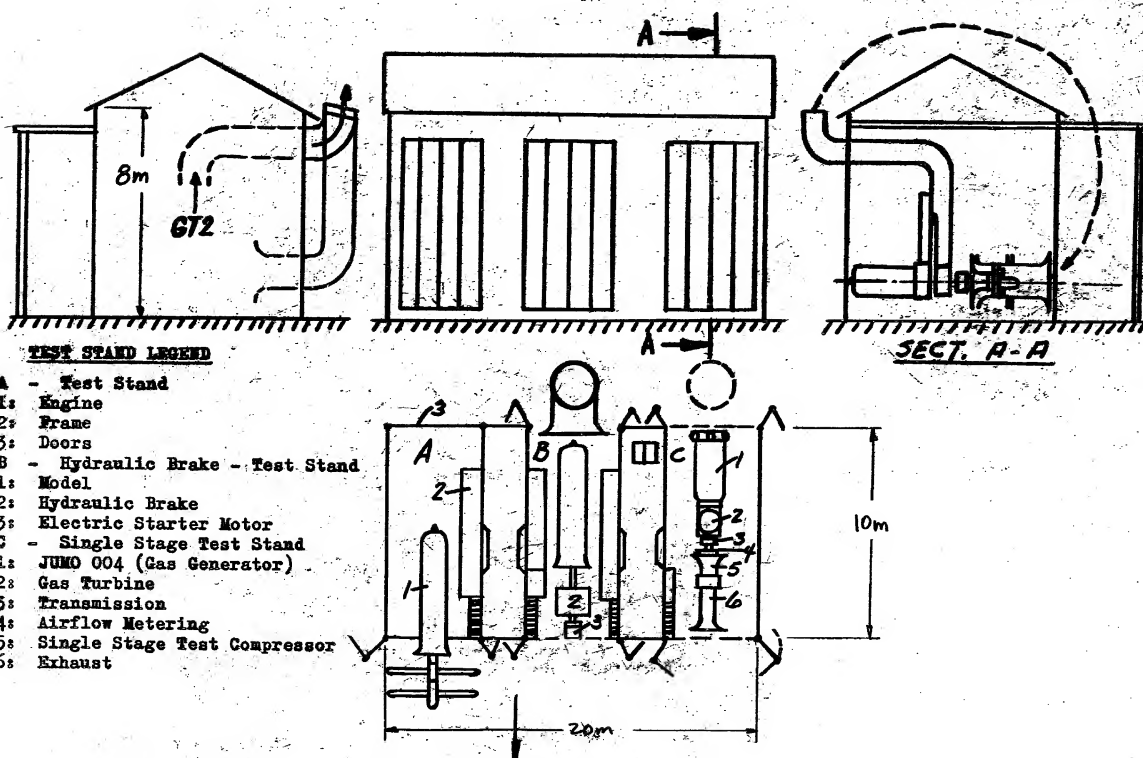
ENCLOSURE (A)

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